

Department of Electrical and Computer Engineering

Title: «Distributed Estimation in Sensor Networks»

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Room ΠΤΕΡ – E010, Old Campus

University of Cyprus

Abstract: The past decade has seen successful applications of sensor networks in many practical areas ranging from military sensing, physical security, air traffic control, to distributed robotics and industrial and manufacturing automation. Theoretical research on sensor networks has gained an increasing attention from multiple disciplines including engineering, computer science and mathematics. Accordingly, the distributed estimation and filtering problems have been attracting growing research interests. A number of results have been published about the distributed Kalman filtering. In particular, diffusion strategy has been established for the design of distributed Kalman filtering and smoothing, in which nodes communicate with their direct neighbors only, and the information is diffused across the network through a sequence of Kalman iterations and data-aggregation. On the other hand, consensus problem is one of the most fundamental issues in cooperative control of multi-agent systems which have received much attention in the past few years. In this talk the localization problem for sensor network is regarded as a distributed problem and both the presence and the lack of information are exploited to achieve positioning awareness.

Biography: Federica Pascucci received the "Laurea" degree in Computer Science from the University of "Roma Tre" and the Research Doctorate degree in Systems Engineering from the University of Rome "La Sapienza" in 2000 and 2004 respectively. She is with the Department of Engineering of the University of "Roma Tre", where she is an Assistant Professor since 2005. Her research interests are in the field of industrial control systems, robotics, sensor fusion and critical infrastructure protection (CIP). Several published papers, in the robotics field, are in the area of mobile robotic localization in unstructured environment. Many techniques derived from Fuzzy Logic, Bayesian Estimation, and Dempster-Shafer Theory have been developed and applied to the problem of mapping building and vision based localization. More recently, she has been interested to search and rescue localization in highly dynamic environment using sensor networks.